

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claims 1-61 (Canceled)

62. (Previously Presented) A method of fabricating a porous dielectric layer in a field emission display comprising:

forming a polycrystalline silicon layer on a substrate and a plurality of columns on the substrate;

forming pores in the polycrystalline silicon layer to form a porous polycrystalline silicon layer; and

oxidizing the porous polycrystalline silicon layer to provide a porous silicon dioxide layer.

63. (Previously Presented) The method of claim 62 wherein the act of forming pores in the polycrystalline silicon layer comprises anodizing the polycrystalline silicon layer.

64. (Previously Presented) The method of claim 63 wherein the act of anodizing the polycrystalline silicon layer forms a porous polycrystalline silicon layer having at least 50% voids and the act of oxidizing the porous polycrystalline silicon layer forms a porous silicon dioxide layer having at least 22.5% voids.

65. (Previously Presented) The method of claim 63 wherein the act of anodizing the polycrystalline silicon layer forms a porous polycrystalline silicon layer having at least 75% voids and the act of oxidizing the porous polycrystalline silicon layer forms a porous silicon dioxide layer having at least 61.5% voids.

66. (Previously Presented) The method of claim 62 wherein the act of oxidizing the porous polycrystalline silicon layer to provide a porous silicon dioxide layer

comprises oxidizing the porous polycrystalline silicon layer to form a porous silicon dioxide layer having a relative dielectric constant of less than 3.

67. (Previously Presented) The method of claim 62 wherein the act of oxidizing the porous polycrystalline silicon layer to provide a porous silicon dioxide layer comprises oxidizing the porous polycrystalline silicon layer to form a porous silicon dioxide layer having a relative dielectric constant of less than 1.6.

68. (Previously Presented) The method of claim 62 wherein the porous silicon dioxide layer is comprised of columnar silicon dioxide spacers with pores between the columnar spacers.

69. (Previously Presented) The method of claim 62, further comprising planarizing the porous silicon dioxide layer.

70. (Previously Presented) The method of claim 69, wherein the act of planarizing the porous silicon dioxide layer comprises chemical-mechanical polishing the porous silicon dioxide layer.

71. (Previously Presented) A method of fabricating a field emission display baseplate comprising:

forming columns on a substrate;

forming a silicon layer on the columns and the substrate;

etching the silicon layer to form a porous silicon layer;

oxidizing the porous silicon layer to form a porous silicon dioxide layer;

planarizing the porous silicon dioxide layer;

forming an extraction grid on the porous silicon dioxide layer;

etching openings through the porous silicon dioxide layer and the extraction grid;

and

forming emitters in the openings in the porous silicon dioxide and the extraction

grid.

72. (Previously Presented) The method of claim 71 wherein the act of etching the silicon layer forms a porous silicon layer having at least 50% voids and the act of oxidizing the porous silicon layer forms a porous silicon dioxide layer having at least 22.5% voids.

73. (Previously Presented) The method of claim 71 wherein the act of etching the silicon layer forms a porous silicon layer having at least 75% voids and the act of oxidizing the porous silicon layer forms a porous silicon dioxide layer having at least 61.5% voids.

74. (Previously Presented) The method of claim 71 wherein the act of oxidizing the porous silicon layer to form a porous silicon dioxide layer comprises oxidizing the porous silicon layer to form a porous silicon dioxide layer having a relative dielectric constant of less than 3.

75. (Previously Presented) The method of claim 71 wherein the act of oxidizing the porous silicon layer to form a porous silicon dioxide layer comprises oxidizing the porous silicon layer to form a porous silicon dioxide layer having a relative dielectric constant of less than 1.6.

76. (Previously Presented) The method of claim 71 wherein the act of etching the silicon layer to form a porous silicon layer comprises anodizing the silicon layer to form the porous silicon layer.

77. (Previously Presented) The method of claim 71 wherein the act of forming emitters comprises forming a high resistance emitter body of silicon monoxide and metal.

78. (Previously Presented) The method of claim 77 wherein the act of forming a high resistance emitter body comprises forming a high resistance emitter body by co-

evaporation of silicon monoxide and a metal at an evaporation angle of 90 degrees with respect to the substrate surface.

79. (Previously Presented) The method of claim 71, further comprising, after the act of etching openings through the porous silicon dioxide layer and the extraction grid and prior to the act of forming emitters in the openings in the porous silicon dioxide layer and the extraction grid, forming a sacrificial layer on the extraction grid by angle evaporation.

80. (Previously Presented) The method of claim 79 wherein the act of forming a sacrificial layer on the extraction grid by angle evaporation comprises forming a sacrificial layer on the extraction grid by angle evaporation at an angle of seventy five degrees or more from a surface normal of the substrate.

81. (Previously Presented) The method of claim 79 wherein the act of forming emitters comprises:

forming emitter bodies by co-evaporating silicon monoxide and a metal; and

forming emitter tips by evaporating a material having a work function of less than four electron volts.

82. (Previously Presented) The method of claim 71 wherein the porous silicon dioxide layer is comprised of columnar silicon dioxide spacers with pores between the columnar spacers.

83. (Previously Presented) The method of claim 71, wherein the act of planarizing the porous silicon dioxide layer comprises chemical-mechanical polishing the porous silicon dioxide layer.

84. (Previously Presented) A method of fabricating a field emission display baseplate comprising:

forming conductors on a substrate;

forming a porous silicon dioxide layer on the conductors and on the substrate;

planarizing the porous silicon dioxide layer;  
forming an extraction grid on the porous silicon dioxide layer;  
etching openings through the porous silicon dioxide layer and the extraction grid;  
and  
forming emitters in the openings in the porous silicon dioxide layer and the extraction grid.

85. (Previously Presented) The method of claim 84 wherein the act of forming emitters comprises forming a high resistance emitter body of silicon monoxide and metal.

86. (Previously Presented) The method of claim 85 wherein the act of forming a high resistance emitter body comprises forming a high resistance emitter body by co-evaporation of silicon monoxide and a metal at an evaporation angle of 90 degrees with respect to the substrate surface.

87. (Previously Presented) The method of claim 84, further comprising, after the act of etching openings through the porous silicon dioxide layer and the extraction grid and prior to the act of forming emitters in the openings in the porous silicon dioxide layer and the extraction grid, forming a sacrificial layer on the extraction grid by angle evaporation.

88. (Previously Presented) The method of claim 87 wherein the act of forming a sacrificial layer on the extraction grid by angle evaporation comprises forming a sacrificial layer on the extraction grid by angle evaporation at an angle of seventy five degrees or more from a surface normal of the substrate.

89. (Previously Presented) The method of claim 87 wherein the act of forming emitters comprises:

forming emitter bodies by co-evaporating silicon monoxide and a metal; and  
forming emitter tips by evaporating a material having a work function of less than four electron volts.

90. (Previously Presented) The method of claim 84 wherein the act of forming a porous silicon dioxide layer comprises forming a porous silicon dioxide layer having a dielectric constant of less than 3.

91. (Previously Presented) The method of claim 84 wherein the act of forming a porous silicon dioxide layer comprises forming a porous silicon dioxide layer having a dielectric constant of less than 1.6.

92. (Previously Presented) The method of claim 84 wherein the porous silicon dioxide layer is comprised of columnar silicon dioxide spacers with pores between the columnar spacers.

93. (Previously Presented) The method of claim 84 wherein the act of forming a porous silicon dioxide layer comprises forming a porous silicon layer having at least 22.5% voids.

94. (Previously Presented) The method of claim 84 wherein the act of forming a porous silicon dioxide layer comprises forming a porous silicon layer having a dielectric constant of less than 3.

95. (Previously Presented) The method of claim 84 wherein the act of forming a porous silicon dioxide layer comprises forming a porous silicon layer having at least 61.5% voids.

96. (Previously Presented) The method of claim 84, wherein the act of planarizing the porous silicon dioxide layer comprises chemical-mechanical polishing the porous silicon dioxide layer.